

BR-101 Free Flow Toll System

Brazil's first Free Flow tolling system

BR-101 is one of those mythical routes, like Argentina's Route 40 or 66 in the United States. It is a federal highway that runs along almost the entire Brazilian coast from the north to the south of the country.

Kapsch TrafficCom's state-of-the-art solutions for toll collection keep traffic flowing optimally across your network.

On the 270 km stretch of BR-101 that connects three coastal cities in the states of Rio de Janeiro and São Paulo, the concessionaire responsible for the highway initially planned to install three toll plazas. When the new law regulating Free Flow tolls was approved in Brazil, the concessionaire opted for Kapsch's Free Flow tolling solution instead of conventional tolling. This decision made it the first concessionaire to implement this type of tolling in Brazil, within a legal framework. Having its solution chosen for that project, Kapsch was the first company to implement its Free Flow Toll technology in the country.



Project Scope:

Supply, installation and commissioning of the Free Flow Multi Lane Free Flow (MLFF) electronic toll collection system including:

- Development and implementation of MLFF RSS and RFID
- 3 gantries
- 31 RFID antennas
- 17 readers with Artefato protocol
- 8 VDX sensors
- 14 side-view VRX cameras
- 41 infrared illuminators
- Operational back office
- Integration with the concessioner's commercial back office
- System configuration, testing and commissioning
- 18-month maintenance period

The Challenges:

The process of introducing the Free Flow toll technology in Brazil, for the first time within a legal framework, began long before this first project and involved a great deal of technological know-how transfer between Austria (Kapsch's home country), Chile and Brazil.

Kapsch played a crucial role as developer and supplier of the technology, coordinating visits by representatives of Brazilian concessionaires and regulatory agencies to its Free Flow toll installations and deployments in Chile, USA and Austria, where the company has had systems in operation for more than 20 years. There were also numerous informative sessions among all those involved, webinars and exchange of content related on the technology, enforcement in other countries, KPIs, etc.

The Solution:

The project for BR-101 consisted of the installation of 3 gantries, located in the cities of Itaguaí, Mangaratiba and Paraty. so that all drivers who have a TAG associated with their vehicle can pass without reducing speed. The gantries were equipped with high-precision equipment to ensure system performance, detection accuracy and correct identification, vehicle classification (differentiation of buses and trucks) and axle counting (including detection of double wheels, suspended axles and rolling axles).

Kapsch also developed the operational back office for automatic and manual validation of transactions, image processing using two engines with OCR (Optical Character Recognition) and license plate fingerprinting technologies. The operational back office is integrated with the concessioner's commercial back office to manage the processed transactions and make them available to the different means of payment, and with the application system to send notifications of fines related to payment evasion.



The Added Value

- *Zero accidents related to toll collection, as opposed to tolling, where there is a higher risk of accidents.*
- *46% increase in the use of tags for toll payment in the first three months*
- *Elimination of congestion caused by tolls.*
- *High performance RFID tag reading system.*
- *Classification of 20 vehicle categories based on number of axles (discounting suspended axles), double wheel detection on rear axle, trailer detection and volumetrics.*